

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-064838

(43)Date of publication of application : 10.03.1995

(51)Int.Cl.

G06F 12/00

G06F 12/00

(21)Application number : 05-215665

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(22)Date of filing : 31.08.1993

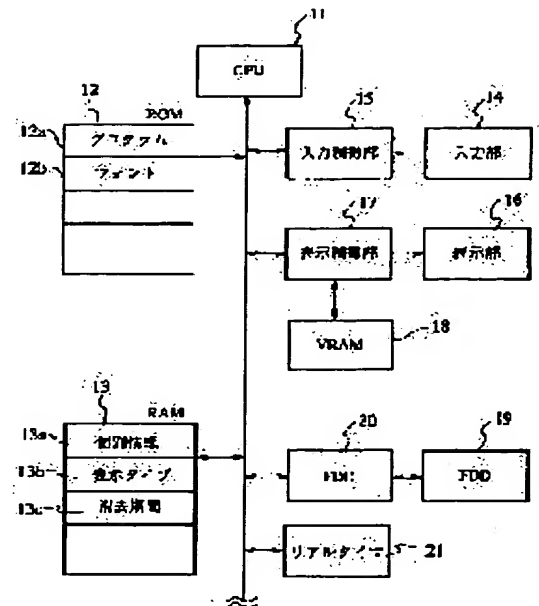
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(54) INFORMATION PROCESSOR AND CONTROL METHOD

(57)Abstract:

PURPOSE: To easily recognize new/old change contents of each item at the time of display of individual information and to automatically erase unnecessary information with respect to the information processor provided with the version management function.

CONSTITUTION: At each time of the change of individual information, new information is stored as the updated information in an individual information storage area 13a of a RAM 13, and old information is stored there in the order of change as the history information. A CPU 11 displays individual information on a display part 16 in such form based on the updated information and history information stored in the individual information storage area 13a that new/old change contents of each item can be understood. While the period when the history information should be erased is set to an erase period storage area 13c, the CPU 11 detects a history information, which is not accessed in this designated period, to process it as the erase object.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

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CLAIMS

[Claim(s)]

[Claim 1] Whenever it changes the above-mentioned individual information, while remembering new information to be a display means for displaying the individual information which consists of two or more items as update information A storage means to memorize it in order of modification, using old information as hysteresis information, The information processor characterized by providing the control means displayed on the above-mentioned display means in a format which understands those old and new contents of modification for the above-mentioned individual information for every above-mentioned item based on the above-mentioned update information and the above-mentioned hysteresis information which were memorized by this storage means.

[Claim 2] Whenever it changes the above-mentioned individual information, while remembering new information to be a display means for displaying the individual information which consists of two or more items as update information When the above-mentioned hysteresis display is not directed by storage means to memorize it in order of modification, using old information as hysteresis information, directions means to direct a hysteresis display, and this directions means When the above-mentioned individual information is displayed on the above-mentioned display means based on the above-mentioned update information memorized by the above-mentioned storage means and the above-mentioned hysteresis display is directed by the above-mentioned directions means The information processor characterized by providing the control means displayed on the above-mentioned display means in a format which understands the old and new contents of modification for the above-mentioned individual information for every above-mentioned item based on the above-mentioned update information and the above-mentioned hysteresis information which were memorized by the above-mentioned storage means.

[Claim 3] Whenever it changes the above-mentioned individual information, while memorizing for a storage means by making new information into update information in the control approach of the information processor equipped with the display means for displaying the individual information which consists of two or more items When it memorizes for this storage means in order of modification by making old information into hysteresis information and the hysteresis display is not directed When the above-mentioned individual information is displayed on the above-mentioned display means based on the above-mentioned update information memorized by the above-mentioned storage means and the above-mentioned hysteresis display is directed The control approach characterized by making it display on the above-mentioned display means in a format which understands the old and new contents of modification for the above-mentioned individual information for every above-mentioned item based on the above-mentioned update information and the above-mentioned hysteresis information which were memorized by the above-mentioned storage means.

[Claim 4] Whenever it changes the above-mentioned individual information, while remembering new information to be a display means for displaying individual information as update information A storage means to memorize it in order of modification, using old information as hysteresis information, and an assignment means to specify the period for eliminating the above-mentioned hysteresis information memorized by this storage means, The information processor characterized by

providing, a detection means to detect the above-mentioned hysteresis information which was specified by this assignment means, and by which fixed period access was not carried out [above-mentioned], and the control means which processes the above-mentioned hysteresis information detected by this detection means as a candidate for elimination.

[Claim 5] Whenever it changes the above-mentioned individual information, while remembering new information to be a display means for displaying individual information as update information A storage means to memorize it in order of modification, using old information as hysteresis information, and an assignment means to specify the period for eliminating the above-mentioned hysteresis information memorized by this storage means, A detection means to detect the above-mentioned hysteresis information which was specified by this assignment means and by which fixed period access was not carried out [above-mentioned], The information processor characterized by providing the control means which eliminates the above-mentioned hysteresis information that this display was forbidden to predetermined timing from the above-mentioned storage means after forbidding presenting of the above-mentioned hysteresis information detected by this detection means.

[Claim 6] Whenever it changes the above-mentioned individual information, while memorizing for a storage means by making new information into update information in the control approach of the information processor equipped with the display means for displaying individual information By memorizing for this storage means in order of modification by making old information into hysteresis information, and specifying the period for eliminating the above-mentioned hysteresis information The control approach characterized by eliminating the above-mentioned hysteresis information that detected that above-mentioned hysteresis information by which fixed period access was not carried out, forbade presenting of this detected above-mentioned hysteresis information, and this display was forbidden to predetermined timing from the above-mentioned storage means.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the information processor equipped with the version control function, especially is divided an individual exception, according to a firm, etc., and relates to the information processor and the control approach of managing the information on each item, such as the identifier and family structure (organization configuration), the address, and the telephone number.

[0002]

[Description of the Prior Art] Conventionally, in the information processor equipped with the version control function, in case the memorized information is changed, while memorizing new information as update information, there are some which memorize old information as hysteresis information. In this case, it has composition which displays the hysteresis information on assignment time by usually displaying only new information, for example, directing modification time.

[0003] Moreover, with this kind of information processor, there are some which eliminate that hysteresis information that carried out fixed period progress by specifying an elimination period. That is, if an elimination period is made into three years when hysteresis information continues for for what year being and is memorized, the hysteresis information which passed for three years will be detected, and it will be said that it eliminates from memory.

[0004]

[Problem(s) to be Solved by the Invention] In an information processor which was mentioned above, if it says for example, according to individual when it divides an individual exception, according to a firm, etc. and version control of the information on each item, such as the identifier and family structure (organization configuration), the address, and the telephone number, is carried out, a display which the old and new contents of modification what maiden name was, how family structure was changed, and what the old address was understand at a glance is desired. However, it was directing modification time conventionally, and since the information on past was only displayed alternatively, the contents of modification have not been grasped only by the display.

[0005] moreover, required for inside as hysteresis information, although the hysteresis information which carried out fixed period progress was conventionally eliminated automatically when information was eliminated also what carried out fixed period progress -- it is. Especially the thing that the information on past may be used even if it is carrying out fixed period progress, and is eliminated only on period-conditions if it is in individual information which was mentioned above was very fault.

[0006] When this invention is made in view of the above points and displays individual information, it aims at being able to grasp the old and new contents of modification easily for every item, and only unnecessary information offering an eliminable information processor and the eliminable control approach automatically.

[0007]

[Means for Solving the Problem] Whenever this invention is equipped with the display means for displaying the individual information which consists of two or more items and it changes the above-

mentioned individual information, while memorizing for a storage means by making new information into update information When it memorizes for this storage means in order of modification by making old information into hysteresis information and the hysteresis display is not directed When the above-mentioned individual information is displayed on the above-mentioned display means based on the above-mentioned update information memorized by the above-mentioned storage means and the above-mentioned hysteresis display is directed It is made to display on the above-mentioned display means in a format which understands the old and new contents of modification for the above-mentioned individual information for every above-mentioned item based on the above-mentioned update information and the above-mentioned hysteresis information which were memorized by the above-mentioned storage means.

[0008] Moreover, whenever this invention is equipped with the display means for displaying individual information and it changes the above-mentioned individual information, while memorizing for a storage means by making new information into update information By memorizing for this storage means in order of modification by making old information into hysteresis information, and specifying the period for eliminating the above-mentioned hysteresis information The above-mentioned hysteresis information that detected that above-mentioned hysteresis information by which fixed period access was not carried out, forbade presenting of this detected above-mentioned hysteresis information, and this display was forbidden to predetermined timing is eliminated from the above-mentioned storage means.

[0009]

[Function] According to the above-mentioned configuration, on the occasion of presenting of individual information, it is displayed on a display means based on the update information and hysteresis information which were memorized by the storage means in a format for which the old and new contents of modification understand individual information for every item. Therefore, the hysteresis information which individual information has can be checked with the present information, and can be seen, and the old and new contents of modification can be easily grasped for every item.

[0010] Moreover, after the hysteresis information by which fixed period access was not carried out is detected as a candidate for elimination on the occasion of elimination of hysteresis information and the display is forbidden, it is eliminated from a storage means to predetermined timing. Therefore, compared with the conventional approach of eliminating only on period-conditions, only really unnecessary hysteresis information is eliminable by this invention which adds an access condition. Moreover, if it is before the capacity fills, it can be made to revive simply also for the hysteresis information used as the candidate for elimination, since this elimination is performed for the first time to timing when the capacity of a storage means fills, for example.

[0011]

[Example] Hereafter, one example of this invention is explained with reference to a drawing.

Drawing 1 is the block diagram showing the configuration of the important section of the information processor equipped with the version control function. In drawing 1, CPU11 controls this whole equipment, accesses ROM12 and RAM13 here, is starting of the program according to input directions, and performs version control control processing etc.

[0012] Program field 12a for storing a program required for starting of CPU11 in ROM12, font field 12b for storing the font data used for a display, etc. are prepared.

[0013] Elimination period storing field 13c for storing display type storing field 13b for storing individual information storing field 13a for storing individual information and a display type in RAM13 and an elimination period etc. is prepared.

[0014] The above-mentioned individual information is divided an individual exception, according to a firm, etc., and it has various kinds of information that it was inputted for every item, such as the identifier and family structure (organization configuration), the address, and the telephone number. In this example, as shown in drawing 2, whenever it changes individual information into individual information field 13a, new information is memorized as update information, and old information is memorized in order of modification as hysteresis information. Moreover, the creation date, the

newest access day, and a temporary elimination flag are stored in this individual information field 13a.

[0015] The above-mentioned display type shows the type which displays individual information, and has the display type 0 - n (n is the number of hysteresis information). The type currently displayed before is stored in display type storing field 13b.

[0016] The above-mentioned elimination period is an access period for eliminating unnecessary hysteresis information, and is specified as arbitration by the user. In addition, in this example, this elimination period is not a period of this elimination which shows the period of temporary elimination of forbidding a display and is actually eliminated from memory. This elimination is performed to timing when memory fills.

[0017] The input section 14 is for consisting of a keyboard and inputting information, such as a character code and a command. The input-control section 15 performs the informational input control inputted by the input section 14. A display 16 consists of a liquid crystal display (LCD), and displays various kinds of information, such as individual information. A display and control section 17 performs the display control to a display 16 using VRAM (Video RAM)18. The indicative data displayed on a display 16 is stored in VRAM18.

[0018] A floppy disk drive unit (FDD is called hereafter) 19 is used as external storage, and in case individual information is saved here, it is used. A floppy disk controller (FDC is called hereafter) 20 controls FDD19.

[0019] Moreover, the real timer 21 is formed with this equipment. This real timer 21 has counted current time, and is used for management of an elimination period besides registration of the creation date of individual information, or the newest access day.

[0020] Next, actuation of this example is explained. Here, in the information processor equipped with the version control function, it divides into display-control processing of (a) individual information, and elimination control processing of (b) individual information, and explains.

[0021] (a) If it says for example, according to individual when version control of the information on each item, such as a display-control processing identifier of individual information, family structure (organization configuration), the address, and the telephone number, is carried out, a display which the old and new contents of modification what maiden name was, how family structure was changed, and what the old address was understand at a glance is desired. Then, in case this invention displays individual information, it is characterized by what is displayed in a format which the old and new contents of modification understand for every item.

[0022] For example, as shown in drawing 3 (a) thru/or (c), the case where individual information is changed is assumed. Drawing 3 (a) shows the individual information at the time of the first stage (creation date "91-1-1"). In this case, the individual information on drawing 3 (a) is stored in individual information storing field 13a of RAM13 as update information (new information).

Drawing 3 (b) shows the case where individual information is changed one year after (creation date "92-1-1"). In this case, individual information on drawing 3 (b) is made into update information (new information), and it is stored in individual information storing field 13a, individual information on drawing 3 (a) being used as hysteresis information. Drawing 3 (c) shows the case where individual information is changed into a pan one year after (creation date "93-1-1"). In this case, individual information on drawing 3 (c) is made into update information (new information), and the individual information on drawing 3 (a) and drawing 3 (b) is stored in individual information storing field 13a in order of modification as hysteresis information.

[0023] Thus, when individual information is changed, as shown in drawing 4 , only several pieces of the newest individual information is usually displayed at a time. When the newest individual information is displayed, "hysteresis" switch 31a and "all hysteresis" switch 31b are displayed on the display screen for every affair. "Hysteresis" switch 31a is a switch for seeing the hysteresis information before [one] the individual information concerned has. "All hysteresis" switch 31b is a switch for seeing all the hysteresis information that the individual information concerned has.

[0024] If "hysteresis" switch 31a is chosen with cursor etc. (the pointing of the display of "hysteresis" switch 31a is carried out in the pen input method using a tablet), as shown in drawing 5

(a), the hysteresis information in front of one will be displayed. In this case, only the hysteresis information in front of one is not displayed, but it is displayed in a format which those old and new contents of modification including update information (new information) understand. The formal example in the case of displaying the hysteresis information in front of one on drawing 6 (a) is shown. For example, when family structure is changed, the modification day is added to a current family. Moreover, when the address is changed, present address and the old address are displayed with the modification day.

[0025] Moreover, as "all hysteresis" switch 31b indicates it in drawing 5 (b) as selection ****, all hysteresis information is displayed. Only not all hysteresis information is displayed also in this case, but it is displayed in a format which those old and new contents of modification including update information (new information) understand. The formal example in the case of displaying all hysteresis information on drawing 6 (b) is shown. For example, when the address is changed several times, present address and two or more old addresses (the old address 1, old address 2 --) are displayed with the modification day.

[0026] As shown in drawing 5 (a), where the hysteresis information in front of one is displayed, "hysteresis" switch 31a, "all hysteresis" switch 31b, and "newest" switch 31c are displayed on the display screen. "Newest" switch 31c is a switch for seeing the newest information (current individual information). In addition, although it is a switch for seeing the hysteresis information in front of one more, "hysteresis" switch 31a is not displayed when there is no hysteresis information beyond it. As shown in drawing 5 (b), where all hysteresis information is displayed on the other hand, only "newest" switch 31c is displayed on the display screen.

[0027] Thus, by operating "hysteresis" switch 31a or "all hysteresis" switch 31b, the hysteresis information which the individual information concerned has can be checked with the present information, and can be seen. When the power is turned off with the condition of having switched the screen by actuation of this "hysteresis" switch 31a or "all hysteresis" switch 31b, the display type in which that display condition is shown is held to display type storing field 13b of RAM13 and the reclosing of the power source is carried out, it has composition displayed by the type which was being displayed before. When this reboots, it is because possibility of seeing the hysteresis information which was being displayed before is high.

[0028] Drawing 7 is a flow chart which shows the switch transfer operation of this example. On the occasion of presenting of individual information, CPU11 detects first several n of the hysteresis information which the individual information concerned has (step A1). In addition, at this time, by relation with elimination control processing of (b) individual information mentioned later, the information by which temporary elimination is carried out shall not be displayed and becomes the outside of an object here.

[0029] When "newest" switch 31c is operated (step A2), CPU11 sets the display type P as "0" (step A3). And CPU11 displays this display type 0 of individual information on a display 16 (step A4). In addition, concrete display processing according to type is later explained with reference to drawing 8. Moreover, CPU11 memorizes the display type P at this time (0-n) to display type storing field 13b of RAM13, and in case it displays individual information next time, it displays it from the display type P memorized by this display type storing field 13b (step A5).

[0030] When "hysteresis" switch 31a is operated (step A6), CPU11 carries out renewal of the current display type P of "+1" (step A7). At this time, when the display type P after updating becomes larger [hysteresis information] than several n, (Yes of step A8) and processing which stops the display type P by "n" are performed (step A9). Henceforth, like the above, CPU11 displays this display type P of individual information on a display 16 (step A4), and memorizes the display type P at that time to display type storing field 13b (step A5).

[0031] When "all hysteresis" switch 31b is operated (step A6), CPU11 sets the current display type P as "n" (step A7). Henceforth, like the above, CPU11 displays this display type P of individual information on a display 16 (step A4), and memorizes the display type P at that time to display type storing field 13b (step A5).

[0032] Drawing 8 is a flow chart which shows the display process actuation classified by type of this

example. First, CPU11 reads the update information on the individual information concerned (new information) from individual information storing field 13a of RAM13, and displays this on a display 16 (step B1). Here, CPU11 reads the display type P memorized by display type storing field 13b, and it ends processing here noting that it is presenting of the newest information, if it is the display type 0 (Yes of step B-2).

[0033] When the display type P is except "0" (No of step B-2), CPU11 sets the display counter A as "1" (step B3), and reads the hysteresis information in front of [of the individual information concerned] one from individual information storing field 13a (step B4). The above-mentioned display counter A is for carrying out counting of how many hysteresis information was read, for example, is formed in RAM13. And CPU11 performs a concrete display based on the hysteresis information read at this time, and the update information which it has already begun to read (a screen is changed). In addition, the newest access day added to the hysteresis information concerned is changed into a current date by relation with elimination control processing of (b) individual information mentioned later at this time (step B6).

[0034] When the number which the display counter A shows is smaller than the number which the display type P shows (Yes of step B7), CPU11 carries out renewal of the display counter A of "+1" (step B8), and repeats the processing from step B4. Thus, presenting of typed individual information is performed.

[0035] (b) elimination control **** of individual information -- in this kind of information processor, although there are some which eliminate that hysteresis information that carried out fixed period progress by specifying an elimination period, there is a problem eliminated to required hysteresis information in case of this approach. Then, once this invention makes applicable to elimination the hysteresis information which was not accessed between them and carries out temporary elimination of the hysteresis information in the hysteresis information which carried out fixed period progress, it is characterized by eliminating with the two-step structure of carrying out actual elimination to timing when memory fills.

[0036] For example, suppose that there was hysteresis information 1-5 as shown in drawing 9 . Each creation date and the newest access day are added to each hysteresis information 1-5. The creation date is a day which created the hysteresis information, and the newest access day is a day (day which displayed hysteresis information by "hysteresis" switch 31a or "all hysteresis" switch 31b) which accessed the hysteresis information at the newest.

[0037] Here, if an elimination period is made into two years, and if current 93-1-1, the hysteresis information 3, the hysteresis information 4, and the hysteresis information 5 will be detected as what passed for two years. By the conventional approach of eliminating only on period-conditions, all these hysteresis information 3-5 will be eliminated. In this invention, an access condition is also seen further. That is, it passes for two years and, moreover, what was not accessed between them is detected as a candidate for elimination. In this example, the hysteresis information 4 and the hysteresis information 5 are equivalent to it.

[0038] thus, although the hysteresis information 4 and the hysteresis information 5 are detected as a candidate for elimination, it eliminates from memory immediately in this case -- not having -- once -- temporary elimination -- a flag -- it will be in the condition that display-control information was set and the temporary elimination condition, i.e., a display, was forbidden. This elimination is performed to timing when memory fills. Since this may become behind and may be needed also for the hysteresis information by which fixed period access was not carried out, elimination is actually carried out to deferment, and it is in order to see a situation.

[0039] Drawing 10 is a flow chart which shows temporary elimination actuation of this example. On the occasion of elimination of hysteresis information, CPU11 sets the elimination period X to elimination period storing field 13c of RAM13 first (step C1). This elimination period X is specified as arbitration by the user. Next, if CPU11 reads one individual humanity news at a time from individual information storing field 13a of RAM13 (step C2) and has information (Yes of step C3), several n of the hysteresis information which the individual information concerned has will be detected (step C4).

[0040] Here, CPU11 sets the elimination counter B as "1" (step C5), and detects the newest access day Y of the hysteresis information which the elimination counter B points out (step C6). The above-mentioned elimination counter B is for carrying out counting of which hysteresis information was retrieved, for example, is formed in RAM13. As a result of detecting the newest access day Y of the hysteresis information which the elimination counter B points out, the newest access day Y carries out renewal of the elimination counter B of "+1", when newer than the elimination period X (No of step C7) (step C8), and CPU11 retrieves the hysteresis information that it is next old.

[0041] Thus, the processing from step C6 is repeated until the number which the elimination counter B shows is set to several n of hysteresis information (step C9). In the meantime, when the newest access day Y detects hysteresis information older than the elimination period X (Yes of step C7), including the hysteresis information concerned, CPU11 judges each hysteresis information after it to be a candidate for elimination, sets the temporary elimination flag added to those hysteresis information as 1, and performs temporary elimination (step C10). Since the object of a display separates in the state of temporary elimination as step A1 of drawing 7 explained, the contents cannot be seen on the display screen. Thereby, when there is much amount of information, the amount of information which a user looks at can be limited, and complicatedness can be eased.

[0042] Drawing 11 is a flow chart which shows this elimination actuation of this example. Whenever CPU11 registers individual information into individual information storing field 13a of RAM13, it detects whether the capacity exceeds a permissible dose (step D1). Consequently, in exceeding a permissible dose, (Yes of step D2) and CPU11 display a message as shown in drawing 12 on a display 16, and it warns a user of the purport which carries out actual elimination (step D3). By this message indicator, a user can decide whether he may carry out actual elimination.

[0043] Management of moving (No of step D4), for example, individual information, to FDD19 can be performed to carry out actual elimination. Moreover, the temporary elimination list as shown, for example in drawing 13 could be displayed, really unnecessary hysteresis information could be chosen out of it, and it was also able to be said that only the hysteresis information carried out actual elimination.

[0044] When actual elimination may be carried out, (Yes of step D4) and CPU11 eliminate all the hysteresis information by which temporary elimination is carried out from individual information storing field 13a by receiving the directions based on the temporary elimination flag set to current individual information storing field 13a (step D5).

[0045] Thus, when memory space fills, this elimination is performed for the first time. Therefore, if it is before memory space fills also with the hysteresis information used as the candidate for elimination, since it is still in memory, actual data can be revived simply.

[0046] In addition, if the command for carrying out actual elimination, for example etc. is used, regardless of memory space, this elimination can also be performed compulsorily at the stage of arbitration. Moreover, as the approach of this elimination, those with two kind, the approach of carrying out actual elimination of all the hysteresis information by which temporary elimination of one is carried out, and another have the approach of carrying out actual elimination in order from the oldest hysteresis information. In the above-mentioned example, although the former approach was used, the configuration which carries out actual elimination based on the newest access which hysteresis information has, then the latter approach are also easily realizable.

[0047] Moreover, although the hysteresis information which individual information has was made applicable to elimination in the above-mentioned example, it is also possible to make the whole individual information including update information, i.e., new information, applicable to elimination, to carry out temporary elimination, when fixed period access is not carried out, and to carry out actual elimination further.

[0048]

[Effect of the Invention] Since it made display on a display means on the occasion of presenting of individual information based on the update information and the hysteresis information memorized by the storage means in a format which understands the old and new contents of modification for individual information for every item as mentioned above according to this invention, the hysteresis

information which individual information has can check with the present information, and can see, and the old and new contents of modification can grasp easily for every item.

[0049] Moreover, since the hysteresis information by which fixed period access was not carried out was detected as a candidate for elimination on the occasion of elimination of hysteresis information, only really unnecessary hysteresis information is eliminable. In this case, if it is before memory space fills, it can be made to revive easily also for the hysteresis information used as the candidate for elimination if needed, since it was made to eliminate with the two-step structure of carrying out actual elimination (it actually eliminating from memory) to timing when memory space fills after carrying out temporary elimination of the hysteresis information made applicable to elimination (a display is forbidden) for example.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the information processor equipped with the version control function, especially is divided an individual exception, according to a firm, etc., and relates to the information processor and the control approach of managing the information on each item, such as the identifier and family structure (organization configuration), the address, and the telephone number.

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PRIOR ART

[Description of the Prior Art] Conventionally, in the information processor equipped with the version control function, in case the memorized information is changed, while memorizing new information as update information, there are some which memorize old information as hysteresis information. In this case, it has composition which displays the hysteresis information on assignment time by usually displaying only new information, for example, directing modification time.

[0003] Moreover, with this kind of information processor, there are some which eliminate that hysteresis information that carried out fixed period progress by specifying an elimination period. That is, if an elimination period is made into three years when hysteresis information continues for for what year being and is memorized, the hysteresis information which passed for three years will be detected, and it will be said that it eliminates from memory.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since it made display on a display means on the occasion of presenting of individual information based on the update information and the hysteresis information memorized by the storage means in a format which understands the old and new contents of modification for individual information for every item as mentioned above according to this invention, the hysteresis information which individual information has can check with the present information, and can see, and the old and new contents of modification can grasp easily for every item.

[0049] Moreover, since the hysteresis information by which fixed period access was not carried out was detected as a candidate for elimination on the occasion of elimination of hysteresis information, only really unnecessary hysteresis information is eliminable. In this case, if it is before memory space fills, it can be made to revive easily also for the hysteresis information used as the candidate for elimination if needed, since it was made to eliminate with the two-step structure of carrying out actual elimination (it actually eliminating from memory) to timing when memory space fills after carrying out temporary elimination of the hysteresis information made applicable to elimination (a display is forbidden) for example.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In an information processor which was mentioned above, if it says for example, according to individual when it divides an individual exception, according to a firm, etc. and version control of the information on each item, such as the identifier and family structure (organization configuration), the address, and the telephone number, is carried out, a display which the old and new contents of modification what maiden name was, how family structure was changed, and what the old address was understand at a glance is desired. However, it was directing modification time conventionally, and since the information on past was only displayed alternatively, the contents of modification have not been grasped only by the display.

[0005] moreover, required for inside as hysteresis information, although the hysteresis information which carried out fixed period progress was conventionally eliminated automatically when information was eliminated also what carried out fixed period progress -- it is. Especially the thing that the information on past may be used even if it is carrying out fixed period progress, and is eliminated only on period-conditions if it is in individual information which was mentioned above was very fault.

[0006] When this invention is made in view of the above points and displays individual information, it aims at being able to grasp the old and new contents of modification easily for every item, and only unnecessary information offering an eliminable information processor and the eliminable control approach automatically.

[Translation done.]

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MEANS

[Means for Solving the Problem] Whenever this invention is equipped with the display means for displaying the individual information which consists of two or more items and it changes the above-mentioned individual information, while memorizing for a storage means by making new information into update information When it memorizes for this storage means in order of modification by making old information into hysteresis information and the hysteresis display is not directed When the above-mentioned individual information is displayed on the above-mentioned display means based on the above-mentioned update information memorized by the above-mentioned storage means and the above-mentioned hysteresis display is directed It is made to display on the above-mentioned display means in a format which understands the old and new contents of modification for the above-mentioned individual information for every above-mentioned item based on the above-mentioned update information and the above-mentioned hysteresis information which were memorized by the above-mentioned storage means.

[0008] Moreover, whenever this invention is equipped with the display means for displaying individual information and it changes the above-mentioned individual information, while memorizing for a storage means by making new information into update information By memorizing for this storage means in order of modification by making old information into hysteresis information, and specifying the period for eliminating the above-mentioned hysteresis information The above-mentioned hysteresis information that detected that above-mentioned hysteresis information by which fixed period access was not carried out, forbade presenting of this detected above-mentioned hysteresis information, and this display was forbidden to predetermined timing is eliminated from the above-mentioned storage means.

[Translation done.]

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OPERATION

[Function] According to the above-mentioned configuration, on the occasion of presenting of individual information, it is displayed on a display means based on the update information and hysteresis information which were memorized by the storage means in a format for which the old and new contents of modification understand individual information for every item. Therefore, the hysteresis information which individual information has can be checked with the present information, and can be seen, and the old and new contents of modification can be easily grasped for every item.

[0010] Moreover, after the hysteresis information by which fixed period access was not carried out is detected as a candidate for elimination on the occasion of elimination of hysteresis information and the display is forbidden, it is eliminated from a storage means to predetermined timing. Therefore, compared with the conventional approach of eliminating only on period-conditions, only really unnecessary hysteresis information is eliminable by this invention which adds an access condition. Moreover, if it is before the capacity fills, it can be made to revive simply also for the hysteresis information used as the candidate for elimination, since this elimination is performed for the first time to timing when the capacity of a storage means fills, for example.

[Translation done.]

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EXAMPLE

[Example] Hereafter, one example of this invention is explained with reference to a drawing. Drawing 1 is the block diagram showing the configuration of the important section of the information processor equipped with the version control function. In drawing 1, CPU11 controls this whole equipment, accesses ROM12 and RAM13 here, is starting of the program according to input directions, and performs version control control processing etc.

[0012] Program field 12a for storing a program required for starting of CPU11 in ROM12, font field 12b for storing the font data used for a display, etc. are prepared.

[0013] Elimination period storing field 13c for storing display type storing field 13b for storing individual information storing field 13a for storing individual information and a display type in RAM13 and an elimination period etc. is prepared.

[0014] The above-mentioned individual information is divided an individual exception, according to a firm, etc., and it has various kinds of information that it was inputted for every item, such as the identifier and family structure (organization configuration), the address, and the telephone number. In this example, as shown in drawing 2, whenever it changes individual information into individual information field 13a, new information is memorized as update information, and old information is memorized in order of modification as hysteresis information. Moreover, the creation date, the newest access day, and a temporary elimination flag are stored in this individual information field 13a.

[0015] The above-mentioned display type shows the type which displays individual information, and has the display type 0 - n (n is the number of hysteresis information). The type currently displayed before is stored in display type storing field 13b.

[0016] The above-mentioned elimination period is an access period for eliminating unnecessary hysteresis information, and is specified as arbitration by the user. In addition, in this example, this elimination period is not a period of this elimination which shows the period of temporary elimination of forbidding a display and is actually eliminated from memory. This elimination is performed to timing when memory fills.

[0017] The input section 14 is for consisting of a keyboard and inputting information, such as a character code and a command. The input-control section 15 performs the informational input control inputted by the input section 14. A display 16 consists of a liquid crystal display (LCD), and displays various kinds of information, such as individual information. A display and control section 17 performs the display control to a display 16 using VRAM (Video RAM)18. The indicative data displayed on a display 16 is stored in VRAM18.

[0018] A floppy disk drive unit (FDD is called hereafter) 19 is used as external storage, and in case individual information is saved here, it is used. A floppy disk controller (FDC is called hereafter) 20 controls FDD19.

[0019] Moreover, the real timer 21 is formed with this equipment. This real timer 21 has counted current time, and is used for management of an elimination period besides registration of the creation date of individual information, or the newest access day.

[0020] Next, actuation of this example is explained. Here, in the information processor equipped with the version control function, it divides into display-control processing of (a) individual

information, and elimination control processing of (b) individual information, and explains.

[0021] (a) If it says for example, according to individual when version control of the information on each item, such as a display-control processing identifier of individual information, family structure (organization configuration), the address, and the telephone number, is carried out, a display which the old and new contents of modification what maiden name was, how family structure was changed, and what the old address was understand at a glance is desired. Then, in case this invention displays individual information, it is characterized by what is displayed in a format which the old and new contents of modification understand for every item.

[0022] For example, as shown in drawing 3 (a) thru/or (c), the case where individual information is changed is assumed. Drawing 3 (a) shows the individual information at the time of the first stage (creation date "91-1-1"). In this case, the individual information on drawing 3 (a) is stored in individual information storing field 13a of RAM13 as update information (new information).

Drawing 3 (b) shows the case where individual information is changed one year after (creation date "92-1-1"). In this case, individual information on drawing 3 (b) is made into update information (new information), and it is stored in individual information storing field 13a, individual information on drawing 3 (a) being used as hysteresis information. Drawing 3 (c) shows the case where individual information is changed into a pan one year after (creation date "93-1-1"). In this case, individual information on drawing 3 (c) is made into update information (new information), and the individual information on drawing 3 (a) and drawing 3 (b) is stored in individual information storing field 13a in order of modification as hysteresis information.

[0023] Thus, when individual information is changed, as shown in drawing 4, only several pieces of the newest individual information is usually displayed at a time. When the newest individual information is displayed, "hysteresis" switch 31a and "all hysteresis" switch 31b are displayed on the display screen for every affair. "Hysteresis" switch 31a is a switch for seeing the hysteresis information before [one] the individual information concerned has. "All hysteresis" switch 31b is a switch for seeing all the hysteresis information that the individual information concerned has.

[0024] If "hysteresis" switch 31a is chosen with cursor etc. (the pointing of the display of "hysteresis" switch 31a is carried out in the pen input method using a tablet), as shown in drawing 5 (a), the hysteresis information in front of one will be displayed. In this case, only the hysteresis information in front of one is not displayed, but it is displayed in a format which those old and new contents of modification including update information (new information) understand. The formal example in the case of displaying the hysteresis information in front of one on drawing 6 (a) is shown. For example, when family structure is changed, the modification day is added to a current family. Moreover, when the address is changed, present address and the old address are displayed with the modification day.

[0025] Moreover, as "all hysteresis" switch 31b indicates it in drawing 5 (b) as selection ****, all hysteresis information is displayed. Only not all hysteresis information is displayed also in this case, but it is displayed in a format which those old and new contents of modification including update information (new information) understand. The formal example in the case of displaying all hysteresis information on drawing 6 (b) is shown. For example, when the address is changed several times, present address and two or more old addresses (the old address 1, old address 2 --) are displayed with the modification day.

[0026] As shown in drawing 5 (a), where the hysteresis information in front of one is displayed, "hysteresis" switch 31a, "all hysteresis" switch 31b, and "newest" switch 31c are displayed on the display screen. "Newest" switch 31c is a switch for seeing the newest information (current individual information). In addition, although it is a switch for seeing the hysteresis information in front of one more, "hysteresis" switch 31a is not displayed when there is no hysteresis information beyond it. As shown in drawing 5 (b), where all hysteresis information is displayed on the other hand, only "newest" switch 31c is displayed on the display screen.

[0027] Thus, by operating "hysteresis" switch 31a or "all hysteresis" switch 31b, the hysteresis information which the individual information concerned has can be checked with the present information, and can be seen. When the power is turned off with the condition of having switched the

screen by actuation of this "hysteresis" switch 31a or "all hysteresis" switch 31b, the display type in which that display condition is shown is held to display type storing field 13b of RAM13 and the reclosing of the power source is carried out, it has composition displayed by the type which was being displayed before. When this reboots, it is because possibility of seeing the hysteresis information which was being displayed before is high.

[0028] Drawing 7 is a flow chart which shows the switch transfer operation of this example. On the occasion of presenting of individual information, CPU11 detects first several n of the hysteresis information which the individual information concerned has (step A1). In addition, at this time, by relation with elimination control processing of (b) individual information mentioned later, the information by which temporary elimination is carried out shall not be displayed and becomes the outside of an object here.

[0029] When "newest" switch 31c is operated (step A2), CPU11 sets the display type P as "0" (step A3). And CPU11 displays this display type 0 of individual information on a display 16 (step A4). In addition, concrete display processing according to type is later explained with reference to drawing 8. Moreover, CPU11 memorizes the display type P at this time (0-n) to display type storing field 13b of RAM13, and in case it displays individual information next time, it displays it from the display type P memorized by this display type storing field 13b (step A5).

[0030] When "hysteresis" switch 31a is operated (step A6), CPU11 carries out renewal of the current display type P of "+1" (step A7). At this time, when the display type P after updating becomes larger [hysteresis information] than several n, (Yes of step A8) and processing which stops the display type P by "n" are performed (step A9). Henceforth, like the above, CPU11 displays this display type P of individual information on a display 16 (step A4), and memorizes the display type P at that time to display type storing field 13b (step A5).

[0031] When "all hysteresis" switch 31b is operated (step A6), CPU11 sets the current display type P as "n" (step A7). Henceforth, like the above, CPU11 displays this display type P of individual information on a display 16 (step A4), and memorizes the display type P at that time to display type storing field 13b (step A5).

[0032] Drawing 8 is a flow chart which shows the display process actuation classified by type of this example. First, CPU11 reads the update information on the individual information concerned (new information) from individual information storing field 13a of RAM13, and displays this on a display 16 (step B1). Here, CPU11 reads the display type P memorized by display type storing field 13b, and it ends processing here noting that it is presenting of the newest information, if it is the display type 0 (Yes of step B-2).

[0033] When the display type P is except "0" (No of step B-2), CPU11 sets the display counter A as "1" (step B3), and reads the hysteresis information in front of [of the individual information concerned] one from individual information storing field 13a (step B4). The above-mentioned display counter A is for carrying out counting of how many hysteresis information was read, for example, is formed in RAM13. And CPU11 performs a concrete display based on the hysteresis information read at this time, and the update information which it has already begun to read (a screen is changed). In addition, the newest access day added to the hysteresis information concerned is changed into a current date by relation with elimination control processing of (b) individual information mentioned later at this time (step B6).

[0034] When the number which the display counter A shows is smaller than the number which the display type P shows (Yes of step B7), CPU11 carries out renewal of the display counter A of "+1" (step B8), and repeats the processing from step B4. Thus, presenting of typed individual information is performed.

[0035] (b) elimination control **** of individual information -- in this kind of information processor, although there are some which eliminate that hysteresis information that carried out fixed period progress by specifying an elimination period, there is a problem eliminated to required hysteresis information in case of this approach. Then, once this invention makes applicable to elimination the hysteresis information which was not accessed between them and carries out temporary elimination of the hysteresis information in the hysteresis information which carried out fixed period progress, it

is characterized by eliminating with the two-step structure of carrying out actual elimination to timing when memory fills.

[0036] For example, suppose that there was hysteresis information 1-5 as shown in drawing 9. Each creation date and the newest access day are added to each hysteresis information 1-5. The creation date is a day which created the hysteresis information, and the newest access day is a day (day which displayed hysteresis information by "hysteresis" switch 31a or "all hysteresis" switch 31b) which accessed the hysteresis information at the newest.

[0037] Here, if an elimination period is made into two years, and if current 93-1-1, the hysteresis information 3, the hysteresis information 4, and the hysteresis information 5 will be detected as what passed for two years. By the conventional approach of eliminating only on period-conditions, all these hysteresis information 3-5 will be eliminated. In this invention, an access condition is also seen further. That is, it passes for two years and, moreover, what was not accessed between them is detected as a candidate for elimination. In this example, the hysteresis information 4 and the hysteresis information 5 are equivalent to it.

[0038] thus, although the hysteresis information 4 and the hysteresis information 5 are detected as a candidate for elimination, it eliminates from memory immediately in this case -- not having -- once -- temporary elimination -- a flag -- it will be in the condition that display-control information was set and the temporary elimination condition, i.e., a display, was forbidden. This elimination is performed to timing when memory fills. Since this may become behind and may be needed also for the hysteresis information by which fixed period access was not carried out, elimination is actually carried out to deferment, and it is in order to see a situation.

[0039] Drawing 10 is a flow chart which shows temporary elimination actuation of this example. On the occasion of elimination of hysteresis information, CPU11 sets the elimination period X to elimination period storing field 13c of RAM13 first (step C1). This elimination period X is specified as arbitration by the user. Next, if CPU11 reads one individual humanity news at a time from individual information storing field 13a of RAM13 (step C2) and has information (Yes of step C3), several n of the hysteresis information which the individual information concerned has will be detected (step C4).

[0040] Here, CPU11 sets the elimination counter B as "1" (step C5), and detects the newest access day Y of the hysteresis information which the elimination counter B points out (step C6). The above-mentioned elimination counter B is for carrying out counting of which hysteresis information was retrieved, for example, is formed in RAM13. As a result of detecting the newest access day Y of the hysteresis information which the elimination counter B points out, the newest access day Y carries out renewal of the elimination counter B of "+1", when newer than the elimination period X (No of step C7) (step C8), and CPU11 retrieves the hysteresis information that it is next old.

[0041] Thus, the processing from step C6 is repeated until the number which the elimination counter B shows is set to several n of hysteresis information (step C9). In the meantime, when the newest access day Y detects hysteresis information older than the elimination period X (Yes of step C7), including the hysteresis information concerned, CPU11 judges each hysteresis information after it to be a candidate for elimination, sets the temporary elimination flag added to those hysteresis information as 1, and performs temporary elimination (step C10). Since the object of a display separates in the state of temporary elimination as step A1 of drawing 7 explained, the contents cannot be seen on the display screen. Thereby, when there is much amount of information, the amount of information which a user looks at can be limited, and complicatedness can be eased.

[0042] Drawing 11 is a flow chart which shows this elimination actuation of this example. Whenever CPU11 registers individual information into individual information storing field 13a of RAM13, it detects whether the capacity exceeds a permissible dose (step D1). Consequently, in exceeding a permissible dose, (Yes of step D2) and CPU11 display a message as shown in drawing 12 on a display 16, and it warns a user of the purport which carries out actual elimination (step D3). By this message indicator, a user can decide whether he may carry out actual elimination.

[0043] Management of moving (No of step D4), for example, individual information, to FDD19 can be performed to carry out actual elimination. Moreover, the temporary elimination list as shown, for

example in drawing 13 could be displayed, really unnecessary hysteresis information could be chosen out of it, and it was also able to be said that only the hysteresis information carried out actual elimination.

[0044] When actual elimination may be carried out, (Yes of step D4) and CPU11 eliminate all the hysteresis information by which temporary elimination is carried out from individual information storing field 13a by receiving the directions based on the temporary elimination flag set to current individual information storing field 13a (step D5).

[0045] Thus, when memory space fills, this elimination is performed for the first time. Therefore, if it is before memory space fills also with the hysteresis information used as the candidate for elimination, since it is still in memory, actual data can be revived simply.

[0046] In addition, if the command for carrying out actual elimination, for example etc. is used, regardless of memory space, this elimination can also be performed compulsorily at the stage of arbitration. Moreover, as the approach of this elimination, those with two kind, the approach of carrying out actual elimination of all the hysteresis information by which temporary elimination of one is carried out, and another have the approach of carrying out actual elimination in order from the oldest hysteresis information. In the above-mentioned example, although the former approach was used, the configuration which carries out actual elimination based on the newest access which hysteresis information has, then the latter approach are also easily realizable.

[0047] Moreover, although the hysteresis information which individual information has was made applicable to elimination in the above-mentioned example, it is also possible to make the whole individual information including update information, i.e., new information, applicable to elimination, to carry out temporary elimination, when fixed period access is not carried out, and to carry out actual elimination further.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the configuration of the information processor concerning one example of this invention.

[Drawing 2] Drawing showing the configuration of the individual information on this example.

[Drawing 3] Drawing showing the changeover state of the above-mentioned individual information.

[Drawing 4] Drawing showing the display screen of the newest information on the above-mentioned individual information.

[Drawing 5] Drawing showing the display screen of the hysteresis information on the above-mentioned individual information.

[Drawing 6] Drawing showing the formal example in the case of displaying the above-mentioned hysteresis information.

[Drawing 7] The flow chart which shows the switch transfer operation of this example.

[Drawing 8] The flow chart which shows the display process actuation classified by type of this example.

[Drawing 9] Drawing for explaining elimination control processing of the individual information on this example.

[Drawing 10] The flow chart which shows temporary elimination actuation of this example.

[Drawing 11] The flow chart which shows this elimination actuation of this example.

[Drawing 12] Drawing showing the message screen of this example.

[Drawing 13] Drawing showing the temporary elimination list screen of this example.

[Description of Notations]

11 --CPU, 12 --ROM, and 13 -- RAM, a 13a-- individual information storing field, a 13b-- display type storing field, and 13c-- an elimination period storing field, 14 -- input section, 15 -- input-control section, and 16 -- a display, 17 -- display and control section, 18 --VRAM, and 19 -- FDD, 20 --FDC, 21 -- real timer, and 31a-- "hysteresis" switch, a 31b-- "all hysteresis" switch and 31c-- "newest" switch.

[Translation done.]

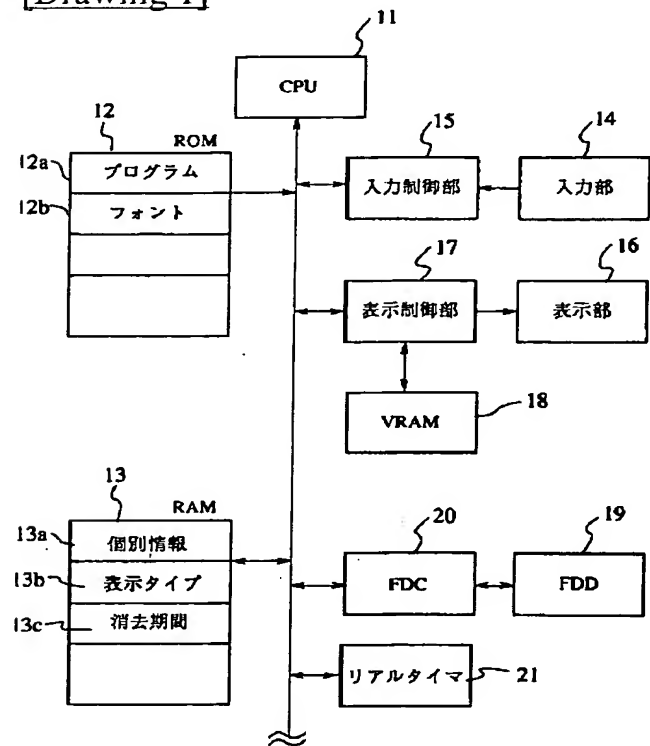
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DRAWINGS

[Drawing 1]



[Drawing 2]

表示タイプ	
作成日	最新アクセス日 仮消去フラグ
アップデート情報 (新情報)	
作成日	最新アクセス日 仮消去フラグ
履歴情報1 (旧情報)	
作成日	最新アクセス日 仮消去フラグ
履歴情報2 (旧情報)	
...	
作成日	最新アクセス日 仮消去フラグ
履歴情報n	

[Drawing 4]

1.

東京太郎

(妻) 花子

(住所) 埼玉県××××

⋮

31b

31a

全履歴履歴

2.

東海次郎

(妻) 紀子

(住所) 千葉県××××

⋮

全履歴履歴

⋮

[Drawing 5]

(a)

東京太郎
(家族) 妻 花子 (1993年1月1日 変更)
(現住所) 埼玉県××××
(1993年1月1日 変更)
(旧住所) 千葉県××××
(1992年1月1日 変更)
⋮
<div><div>31c</div><div>31b</div><div>31a</div><div>最新全履歴履歴</div></div>

(b)

東京太郎
(家族) 妻 花子 (1993年1月1日 変更)
(現住所) 埼玉県××××
(1993年1月1日 変更)
(旧住所1) 千葉県××××
(1992年1月1日 変更)
(旧住所2) 東京都××××
⋮
<div><div>31c</div><div>最新</div></div>

[Drawing 12]

メモリ一杯です。
現在仮消去されている履歴情報を本消去しますが、
よいですか？

[Drawing 3]

(a)

表示タイプ0	
91-1-1	91-1-1 0
名前：東京太郎	
家族：なし	
住所：東京都××××	
⋮	

(c)

表示タイプ3	
93-1-1	93-1-1 0
名前：東京太郎	
家族：妻 花子	
住所：埼玉県××××	
⋮	
92-1-1	92-1-1 0
名前：東京太郎	
家族：なし	
住所：千葉県××××	
⋮	
91-1-1	91-1-1 0
名前：東京太郎	
家族：なし	
住所：東京都××××	
⋮	

(b)

表示タイプ1	
92-1-1	92-1-1 0
名前：東京太郎	
家族：なし	
住所：千葉県××××	
⋮	
91-1-1	91-1-1 0
名前：東京太郎	
家族：なし	
住所：東京都××××	
⋮	

[Drawing 6]

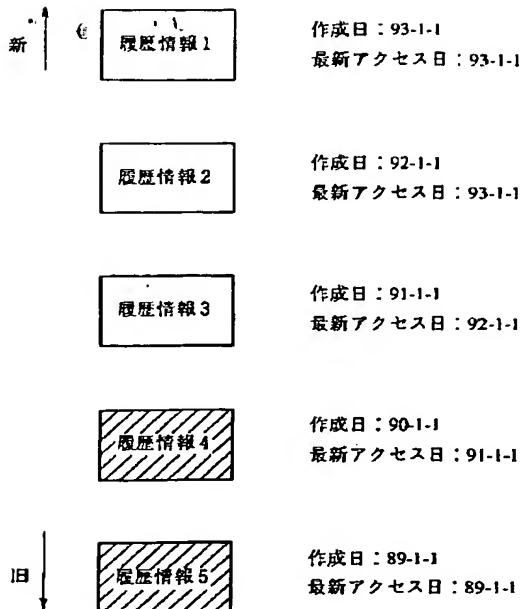
(a)

名 前		
(旧姓)	××××	(日 付)
(家族)	××××	(日 付)
(現住所)	××××	(日 付)
(旧住所)	××××	(日 付)
(現勤務先)	××××	(日 付)
⋮		

(b)

名 前		
(旧姓)	××××	(日 付)
(家族)	××××	(日 付)
	××××	(日 付)
(現住所)	××××	(日 付)
(旧住所1)	××××	(日 付)
(旧住所2)	××××	(日 付)
(現勤務先)	××××	(日 付)
(旧勤務先1)	××××	(日 付)
⋮		

[Drawing 9]



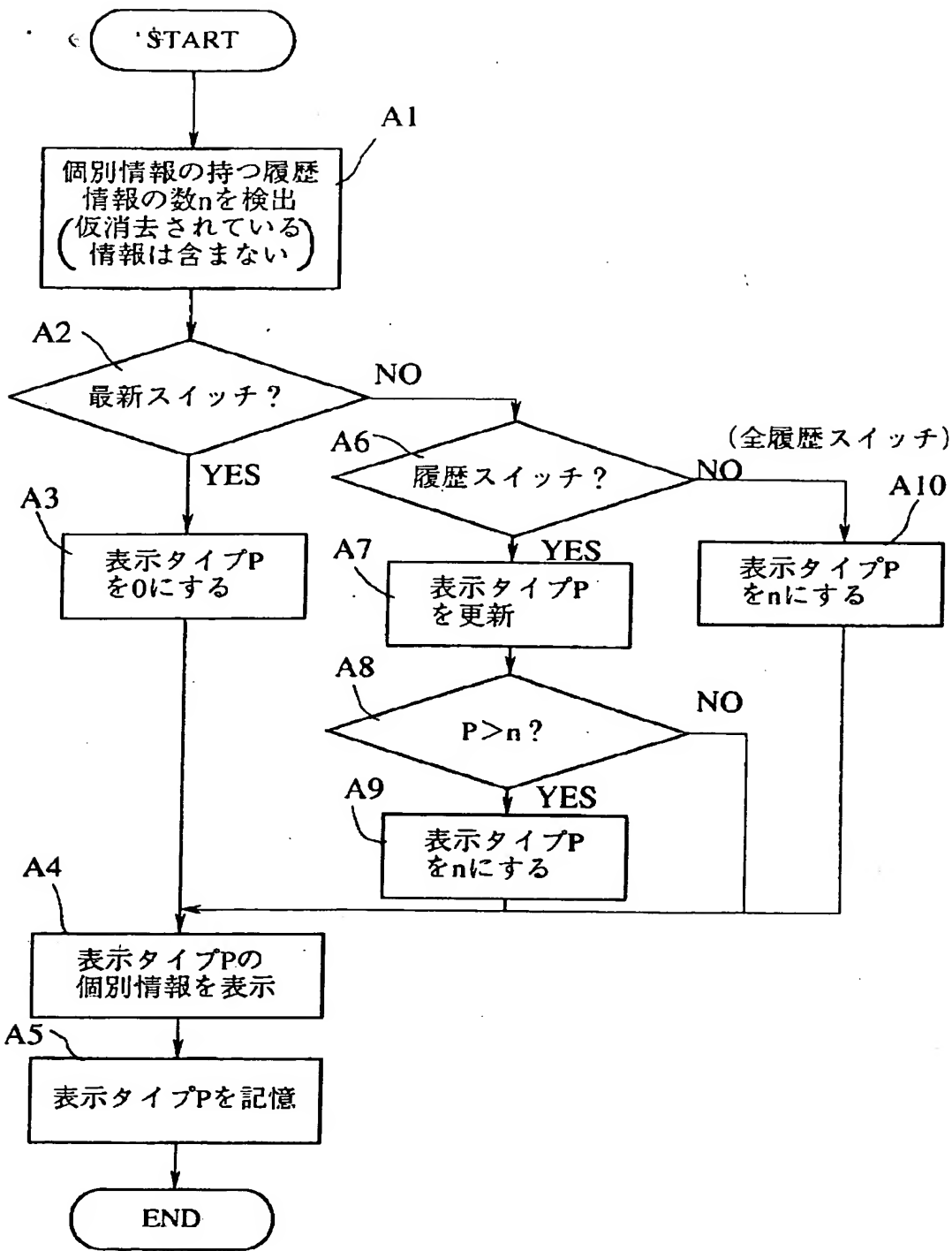
[Drawing 13]

仮消去リスト

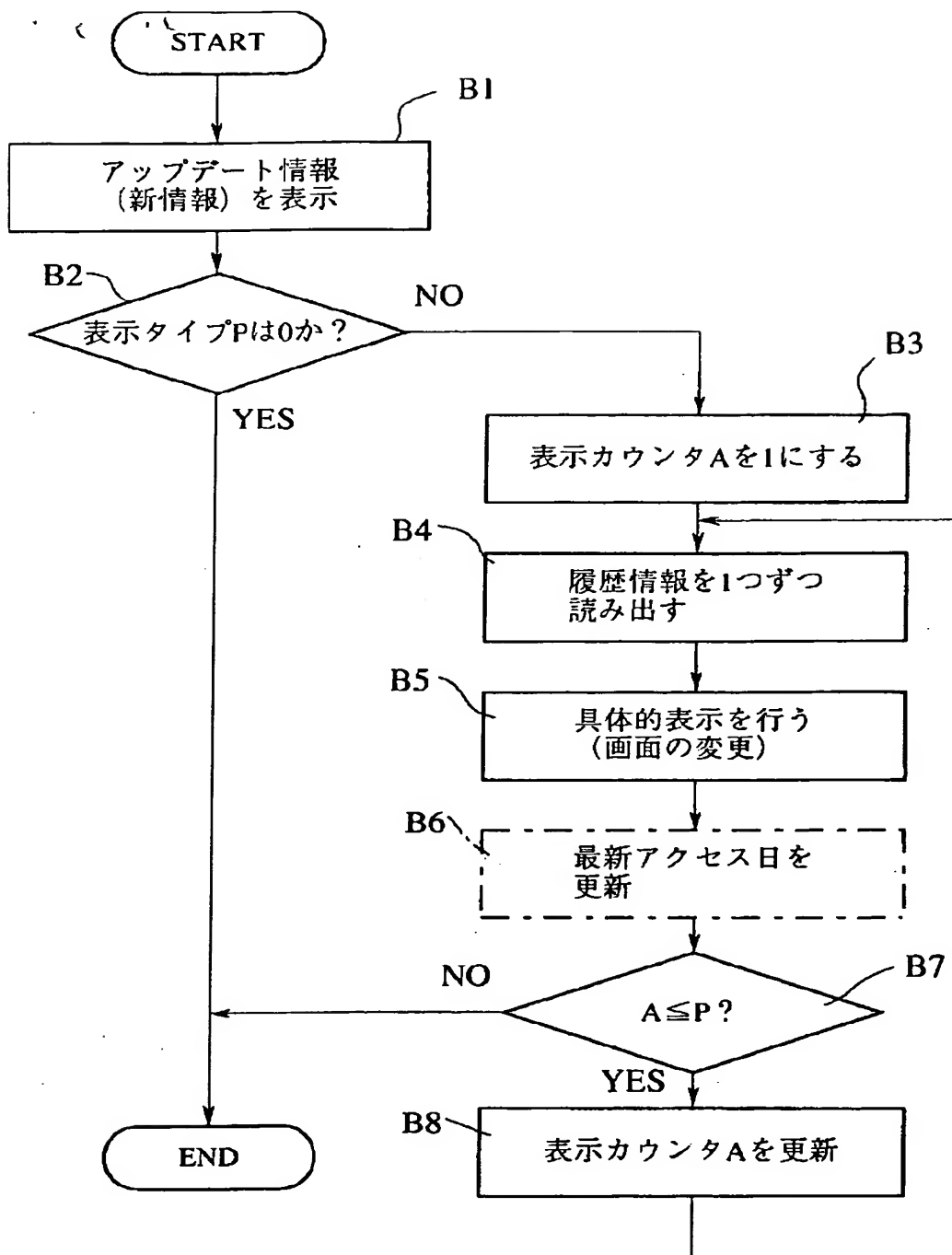
- (1) 個別情報 A
履歴情報 5、履歴情報 6
- (2) 個別情報 B
履歴情報 5
- (3) 個別情報 C
履歴情報 1、履歴情報 2

⋮

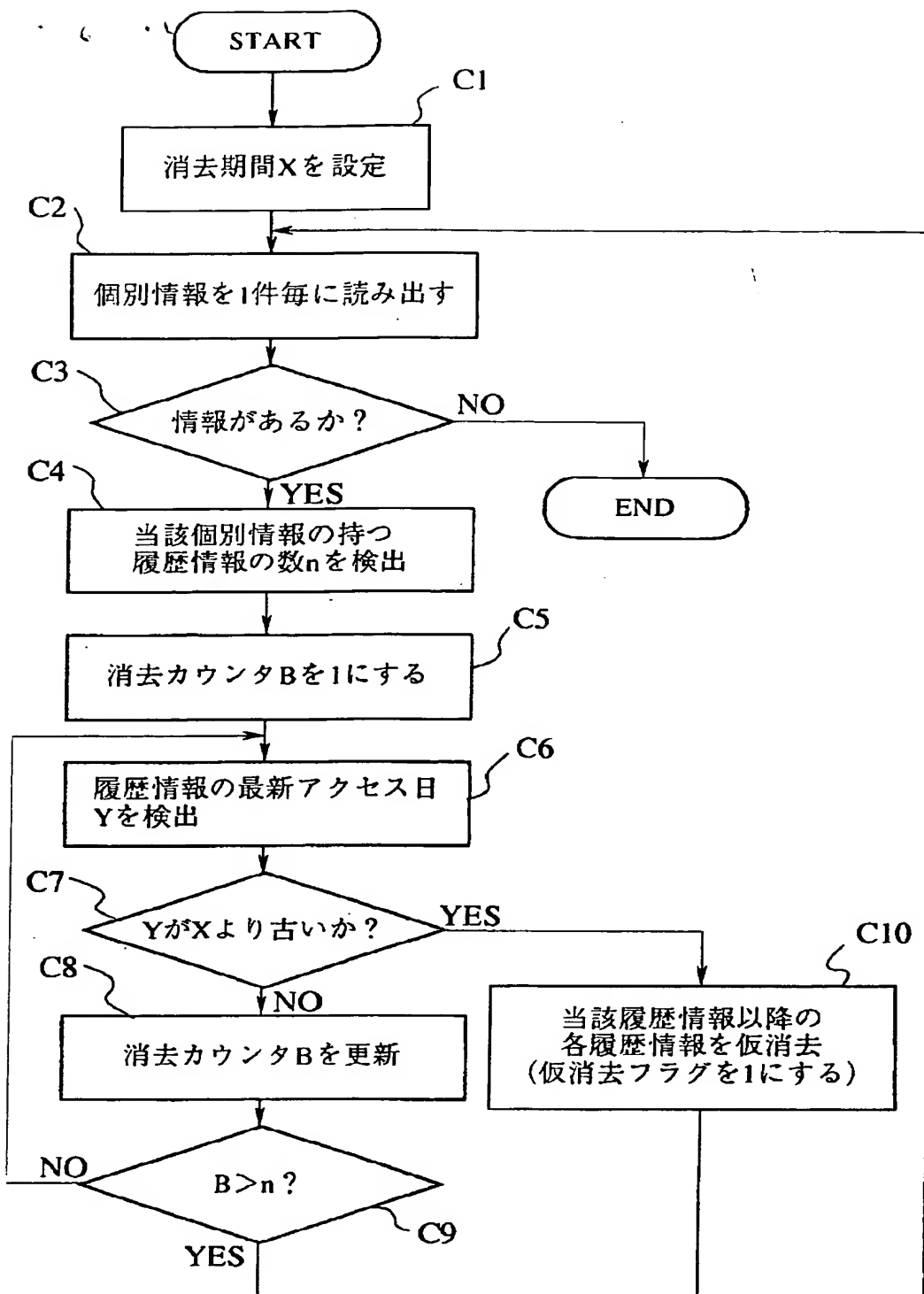
[Drawing 7]



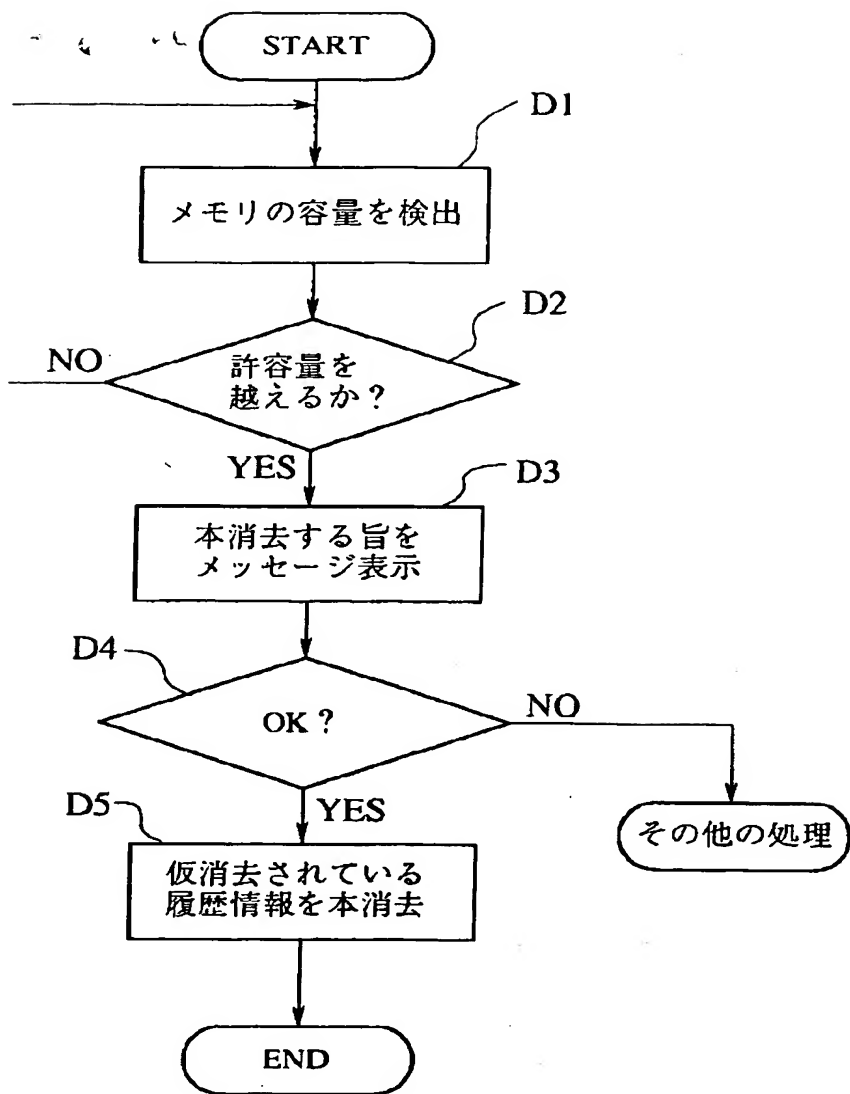
[Drawing 8]



[Drawing 10]



[Drawing 11]



[Translation done.]